

DEC 29 2008

REMARKS/ARGUMENTS

In view of the following remarks, the applicant respectfully submits that the pending claims are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicant respectfully requests that the Examiner contact the undersigned to schedule a telephone Examiner Interview before issuing any further actions on the merits.

The applicant will now address each of the issues raised in the outstanding Office Action.

Rejections under 35 U.S.C. § 103

Claims 11-13, 15, 18, 21 and 27-31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0142316 ("the Schenkl publication") in view of U.S. Patent No. 5,485,013 ("the Cummins patent"). The applicant respectfully requests that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Before addressing at least some of the patentable features of various claims, embodiments consistent with the claimed invention are first introduced. Embodiments consistent with the claimed invention provide a diaphragm system **arranged separate from a carrier** and spaced from a

transmitter and/or a receiver. The present application states:

This means in particular that the diaphragm system has no function connected with the arrangement, alignment and fixing of the transmitter to the carrier or receiver.

(Page 4, lines 3-6 of the present application) The separate diaphragm construction helps avoid having to precisely align the transmitter and receiver. The present application specifies some of the benefits as follows:

[T]he separate construction of the diaphragm system avoids the procedure, necessary in the prior art, of precisely aligning the transmitter relative to the receiver. Rather in this sensor according to the invention it is merely necessary to align the sensor **roughly** to the receiver [Emphasis added.].

(Id., page 4, lines 17-22) Another benefit of using a diaphragm separate from the carrier is that this allows for light from the transmitter to be aligned with the receiver without the need for the costly and difficult to implement, consistent alignment of the transmitter to the receiver. Page 6 of the present application states:

[B]y separate construction of the diaphragm system the procedure, necessary in the prior art, of arranging the receiver precisely aligned to the transmitter is omitted. Rather in this sensor according to the invention it is merely necessary to align the receiver **roughly** to the transmitter [Emphasis added.].

(Id., page 6, lines 5-8) The page 7 of the present application outlines this feature as follows:

This achieves that substantially the only parts of the measurement beam which reach the receiver are those that are propagated in a straight line from the transmitter without scatter through the transmitter diaphragm and the receiver diaphragm to the receiver.

(Id., page 7, lines 22-31) Thus, embodiments consistent with the claimed invention advantageously allow the manufacturer to roughly align the receiver by arranging a diaphragm system **separate from a carrier** to which both the transmitter and the receiver are attached.

Having introduced some exemplary embodiments consistent with the claimed invention, at least some patentable features of the claimed invention are now discussed.

Independent claims 11-13 are not rendered obvious by the Schenkl publication and the Cummins patent because neither of the cited references, either taken alone or in combination, teach or suggest, among other things, a diaphragm system arranged **separate from a carrier** to which both a transmitter and receiver are attached and spaced from the transmitter and/or the receiver.

First, in rejecting claims 11-13, the Examiner merely cites Figure 2 of the Schenkl publication as teaching the claimed receiver, transmitter and carrier. (See Paper No. 20080922, pages 2 and 3.) The Examiner concedes that the Schenkl publication "does not explicitly teach a diaphragm system arranged on the

carrier spaced from the transmitter or arranged on the carrier spaced from receiver. The Examiner then relies on the Cummins patent to allege that the reference teaches this feature. The Examiner alleges:

The arrangement of the diaphragm system is obvious to one skill[ed] in the art, for example, [to have] **attached the diaphragm** to the figures 3 and 10 of the Shenkl et al....[Emphasis added.]

(Id., page 4) The applicant respectfully disagrees.

As noted above, embodiments consistent with the claimed invention provide a diaphragm system **arranged separate from the carrier**. Both the transmitter and the receiver are attached to the carrier. The two plates disclosed in the Cummins patent do not teach or suggest a diaphragm which is arranged separate from the carrier to which a transmitter and receiver are attached. If the diaphragm is separate from the carrier this means that the diaphragm is not attached to the carrier, and therefore not attached to the receiver or transmitter.

More particularly, claims 11-13 are not rendered obvious by the combination of the Schenkl publication and the Cummins patent because neither reference teaches or suggests a **diaphragm arranged separate from the carrier**. Embodiments consistent with the claimed invention can be used to enhance the functionality, efficiency of the art disclosed in the Schenkl publication. More particularly, the diaphragm system of the claimed invention is arranged separate from the carrier such that the diaphragm may be used with a device (such as the device of the Schenkl publication) without having to redesign the device or redesign the manufacturing processes used to make the

device. For example, the diaphragm system consistent with the claimed invention may be a simple plastic insert which is separate from the carrier and can be used with the sensor. In one embodiment, the diaphragm system, instead of being arranged interior to the sensor as shown in Figure 1, could be arranged exterior and adjacent to light-permeable regions 110, 112.

The Cummins patent, by contrast, does not teach or suggest such an arrangement. Figure 4 of the Cummins patent teaches a system in which two plates must not only be carefully aligned with regard to each other, but also with the light source to ensure that light emitted by the light source passes through both plates with the correct acceptable angle. Embodiments consistent with the claimed invention avoid this sort of precise alignment requirement through the use of a diaphragm separate from the carrier, thus making manufacturing sensors cheaper and more efficient. Although the Cummins patent is silent as to whether the plates are separate from the light source or a carrier, the plates seem to be precisely aligned with the light source. Thus, the Cummins patent does not teach a diaphragm system arranged separate from the carrier as clearly recited in the pending claims.

The Schenkl publication also does not teach a diaphragm system arranged separate from the carrier. Thus, independent claims 11-13 are not rendered obvious by the Schenkl publication and the Cummins patent for at least the foregoing reasons. Since claims 15, 18, 21 and 27-31 directly or indirectly depend from claims 11-13, these claims are similarly not rendered obvious by the Schenkl publication and the Cummins patent.

### Conclusion

In view of the foregoing amendments and remarks, the applicant respectfully submits that the pending claims are in condition for allowance. Accordingly, the applicant requests that the Examiner pass this application to issue.


Any arguments made in this amendment pertain **only** to the specific aspects of the invention **claimed**. Any claim amendments or cancellations, and any arguments, are made **without prejudice to, or disclaimer of**, the applicant's right to seek patent protection of any unclaimed (e.g., narrower, broader, different) subject matter, such as by way of a continuation or divisional patent application for example.

Since the applicant's remarks, amendments, and/or filings with respect to the Examiner's objections and/or rejections are sufficient to overcome these objections and/or rejections, the applicant's silence as to assertions by the Examiner in the Office Action and/or to certain facts or conclusions that may be implied by objections and/or rejections in the Office Action (such as, for example, whether a reference constitutes prior art, whether references have been properly combined or modified, whether dependent claims are separately patentable, etc.) is not a concession by the applicant that such assertions and/or implications are accurate, and that all requirements for an objection and/or a rejection have been met. Thus, the applicant reserves the right to analyze and dispute any such assertions and implications in the future.

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Respectfully submitted,

December 26, 2008

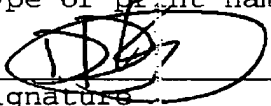
  
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Darren Kang, Attorney  
Reg. No. 51,859  
Tel.: (732) 936-1400

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